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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,101	03/02/2004	Shimshon Gottesfeld	107044-0043	2480
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CESARI AND MCKENNA, LLP 88 BLACK FALCON AVENUE BOSTON, MA 02210			EXAMINER CANTELMO, GREGG	
			ART UNIT	PAPER NUMBER
			1745	
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			09/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/791,101	Applicant(s) GOTTESFELD ET AL.	
	Examiner Gregg Cantelmo	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 12-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In response to the amendment received August 20, 2007:
 - a. Claims 1-6 and 12-14 are pending;
 - b. The specification objection has been addressed but additional applications have since matured into a corresponding U.S. patent or have been allowed and are pending maturation, thus the objection stands;
 - c. The claim objection is overcome in light of the amendment;
 - d. The 112 rejections are withdrawn;
 - e. The prior art rejections stand.

Specification

2. The disclosure is objected to because of the following informalities: at least one of the related applications listed in the specification have since matured into a U.S. patent and the status these applications should be updated. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 5 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,127,058 (Pratt).

Pratt discloses a conformable fuel cell in Fig. 4, comprising: (A) a membrane electrolyte intimately interfacing with a catalyst layer along each of the membrane's major surfaces being a catalyzed membrane electrolyte, having an anode aspect and a cathode aspect, and which catalyzed membrane electrolyte is flexible (e.g., conformable to a desired shape); (B) diffusion layers sandwiching said catalyzed membrane electrolyte, said diffusion layers being comprised of materials that are conformable; (C) flexible current collectors coupled with each of said anode aspect and said cathode aspect of said membrane electrolyte; (D) fuel delivery means coupled with said anode aspect of said membrane electrolyte that delivers fuel substantially uniformly to said anode aspect while said fuel cell maintains said desired shape (Figs. 2-5); (E) electrical coupling 45 disposed across said anode aspect and said cathode aspect and having means for connection to an application device being powered by said fuel cell (as applied to claim 1).

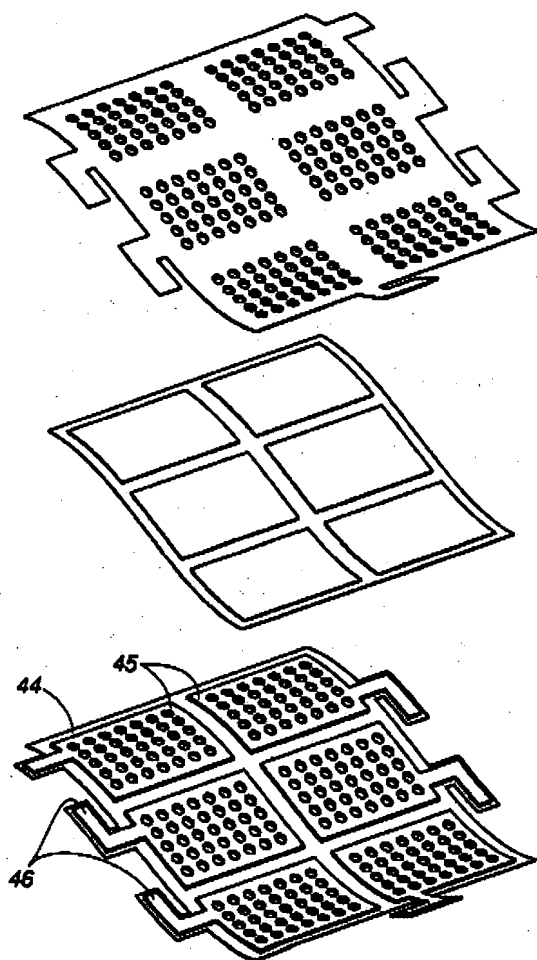


FIG. 4

The current collectors 45 at each of said anode aspect and said cathode aspect apply "adequate compression" effectively over the active area of the membrane electrolyte of each cell (Fig. 4 as applied to claim 2)

The conformable fuel cell includes a degree of water management therein and absent any definition of the term "effective water management" is broadly held to be

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exemplary of the claimed "effective water management" (see col. 3, ll. 25-30 as applied to claim 4).

The fuel is at least one of a vapor, gel, liquid or combination thereof and by example is hydrogen gas (sentence bridging columns 4 and 5 as applied to claim 5).

The fuel cell in Fig. 4 is shaped to form a curvilinear shape (col. 5, ll. 25-28 as applied to claim 12).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt in view of U.S. Patent No. 6,045,575 (Rosen).

The teachings of claim 1 have been discussed above and are incorporated herein.

The difference between claim 13 and Pratt is that Pratt does not teach of mechanically attaching the fuel cell to an article of clothing.

Rosen discloses an article of clothing wherein a fuel cell is mechanically attached to the article to power the electronic light array disposed on the article (Figs. 1a-1c; col. 3, ll. 1-5; col. 6, ll. 1-10).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Pratt by mechanically fastening the fuel cell to an article of clothing which requires a power source as taught by Rosen since the combination reasonably would lead one of ordinary skill in the art to arrive at this combination and since the selection of the fuel cell system of Pratt to a particular load is relative to the intended use of the fuel cell.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosen in view of either Pratt or U.S. Patent No. 6,620,542 (Pan).

Rosen discloses an article of clothing wherein a fuel cell is mechanically attached to the article to power the electronic light array disposed on the article (Figs. 1a-1c; col. 3, ll. 1-5; col. 6, ll. 1-10).

Rosen does not teach of the particulars of the fuel cell.

Pratt teaches of a conformable fuel cell system as shown in Fig. 4.

Pan also teaches of a flexible fuel cell system in Fig. 2 and 3 comprising: (A) a membrane electrolyte intimately interfacing with a catalyst layer along each of the membrane's major surfaces being a catalyzed membrane electrolyte, having an anode aspect and a cathode aspect, and which catalyzed membrane electrolyte is flexible (e.g., conformable to a desired shape); (B) diffusion layers sandwiching said catalyzed membrane electrolyte, said diffusion layers being comprised of materials that are conformable; (C) flexible current collectors coupled with each of said anode aspect and said cathode aspect of said membrane electrolyte; (D) fuel delivery means coupled with said anode aspect of said membrane electrolyte that delivers fuel substantially uniformly to said anode aspect while said fuel cell maintains said desired shape; (E) electrical coupling disposed across said anode aspect and said cathode aspect and having means for connection to an application device being powered by said fuel cell (as applied to claim 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Rosen by using the flexible fuel cell configurations of either Pratt or Pan since it would have provided a suitable

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conformable fuel cell power source for use in the article of clothing of Rosen thereby providing a flexible power source to the flexible article of clothing of Rosen.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt in view of either JP 02-234358 (JP '358) or U.S. Patent No. 6,268,077 (Kelley).

The teachings of claim 1 have been discussed above and are incorporated herein.

The difference between claim 14 and Pratt is that Pratt does not teach of providing fuel to the fuel cell from a detachable conduit that connects to the anode side of the fuel cell.

JP '358 discloses providing a detachable conduit that connects to the anode side of the fuel cell (abstract and Figs. 1, 6 and 7). Kelley discloses a similar configuration wherein fuel is provided to the anode via a fuel cartridge (Figs. 1 and 3)

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Pratt by providing a detachable conduit that connects to the anode side of the fuel cell as taught by either JP '358 is that it would have provided a way to provide fuel to the fuel cell and to permit replacing the fuel or introducing additional fuel to the fuel cell system as needed. In addition has become well known in the art to employ fuel cartridges or cassettes to a fuel cell having a receiving conduit therein in portable electronic devices so as to provide a superior power source to the portable electronic devices while providing a way to re-fuel these power sources when needed.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt in view of U.S. Patent Application Publication No. 2001/0041281 (Wilkinson).

The teachings of claim 1 have been discussed above and are incorporated herein.

While not expressly recited, the fuel cell system of Pratt requires an inherent degree of compressive force therein in order to impart the requisite physical contact between the various layers in the fuel cell so as to provide for the conductive properties of the fuel cell itself.

The difference between claim 3 and Pratt is that Pratt does not teach of compressing the active area at a pressure which is equal to or greater than about 100 psi.

Wilkinson teaches that a fuel cell assembly is typically compressed (for example, at about 70 psi overall) to ensure good electrical contact between the plates and the electrodes, in addition to good sealing between fuel cell components.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Pratt by selecting the pressure of compression to be equal to or greater than about 100 psi since it would have imparted sufficient compression to the layers in the fuel cell and ensured good electrical contact between the plates and the electrodes, in addition to good sealing between fuel cell components. Generally, differences in ranges will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such ranges is critical. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA

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1980). In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969).

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt in view of U.S. Patent No. 4,973,531 (Zaima).

The teachings of claim 1 have been discussed above and are incorporated herein.

The difference between claim 6 and Pratt is that Pratt does not teach of providing a material which expands to impart compression to the fuel cell as recited in claim 6.

Zaima teaches that it is known to incorporate additional dedicated fuel cell compression layers which, in impart compression in response to temperature elevation in the fuel cell (see prior art claim 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Pratt by using the compression element such as that taught/suggested by Zaima since it would have improved the compression of the stack during operation and maintained a high degree of electrical conductivity between adjacent layers in the fuel cell.

9. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt in view of U.U.S. Patent Application Publication No. 2002/0071984 (Dristy).

The teachings of claim 1 have been discussed above and are incorporated herein.

The difference between claim 3 and 6 and Pratt are that Pratt does not teach of compressing the active area at a pressure which is equal to or greater than about 100

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psi (claim 3) or of providing a material which expands to impart compression to the fuel cell as recited in claim 6.

Dristy discloses providing a porous compressive element 64 which withstands and imparts a minimum compressive force of 100 psi to a polymer electrolyte fuel cell (paragraphs 43-46 as applied to both claims 3 and 6).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Pratt by selecting the pressure of compression to be equal to or greater than about 100 psi since it would have imparted sufficient compression to the layers in the fuel cell and ensured good electrical contact between the plates and the electrodes, in addition to good sealing between fuel cell components. Generally, differences in ranges will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such ranges is critical. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969). Applied to claim 3.

Furthermore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Pratt by using the compression element such as that taught/suggested by Dristy since it would have improved the compression of the stack during operation and maintained a high degree of electrical conductivity between adjacent layers in the fuel cell. Applied to claim 6.

Response to Arguments

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10. Applicant's arguments filed August 20, 2007 have been fully considered but they are not persuasive.

Applicant argues that Pratt does not show a catalyzed membrane electrolyte that is conformable to a desired shape. The Examiner is not persuaded.

The phrased "is conformable to a desired shape" neither requires that the claimed fuel cell is actually limited to the "conformed shape" nor does the claim define what the desired shapes are limited to.

It is evident from at least Fig. 4 of Pratt, that the assembly therein, including a catalyzed membrane electrolyte, is flexible and thus can be "conformed to a desired shape" including a planar shape or non-planar shapes.

Applicant emphasizes the term "solid electrolyte" in Pratt, col. 2, ll. 40-45 but such arguments are not clear as to why such emphasis is made. If Applicant is arguing that the term "solid" precludes a conformable electrolyte, any such argument is not persuasive since a solid materials are known to include solid materials which can be flexible in nature. Such a flexible characteristic is again shown in Fig. 4 of Pratt, drawn to a solid electrolyte. Thus the solid electrolyte of Pratt is a flexible solid.

Lastly Applicant directs attention to page 4 of Applicant's specification and the definition of the term "conformable". While such disclosure has been considered in appreciating the disclosed invention, the claims fail to limit the term "conformable" to any such definition, nor does the term "conformable" require that the claimed fuel cell is in fact conformed to the desired shape but only that it is capable of being conformed to a desired shape. Again, the flexible array of Pratt is clearly conformable to planar and

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nonplanar shapes as desired as evident by the flexible array shown in Fig. 4. Lastly the definition recited in page 4, can be any "desired shape" since the definition does not define the shapes which the fuel cell can be or cannot be conformed to. Such shapes would include planar and nonplanar arrays as potential "desired shapes". Thus Pratt, by teaching of both a flexible fuel cell array (conformable) which can be in a planar or nonplanar "desired shape" clearly teaches of such a feature.

11. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that Pratt does not teach of the conformable property as recited in page 4 of Applicant's specification) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Thus Pratt in fact, anticipates those claims set forth above and obviates the remaining claims as set forth above and these rejections stand.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

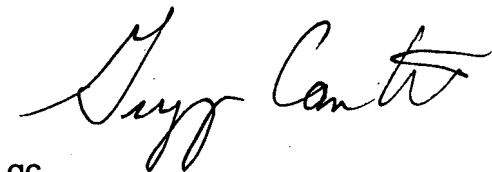
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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is 571-272-1283. The examiner can normally be reached on Monday to Thursday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



gc

September 24, 2007

Gregg Cantelmo
Primary Examiner
Art Unit 1745